

CITOKINE FILTER CONNECTED WITH MACHINE PERFUSION FOR MARGINAL DCD LIVER GRAFTS FROM PIGS

Scalera I¹, Franzin R², Stasi A², Castellaneta A³, Fischetti E¹, Morelli G¹, Raele M¹, Gesualdo L²

¹ Chirurgia Epatobiliare e Centro Trapianti di Fegato, DETO, Università degli Studi di Bari, Policlinico, Bari

² Nefrologia, Dialisi e Trapianto, DETO, Università degli Studi di Bari, Policlinico, Bari

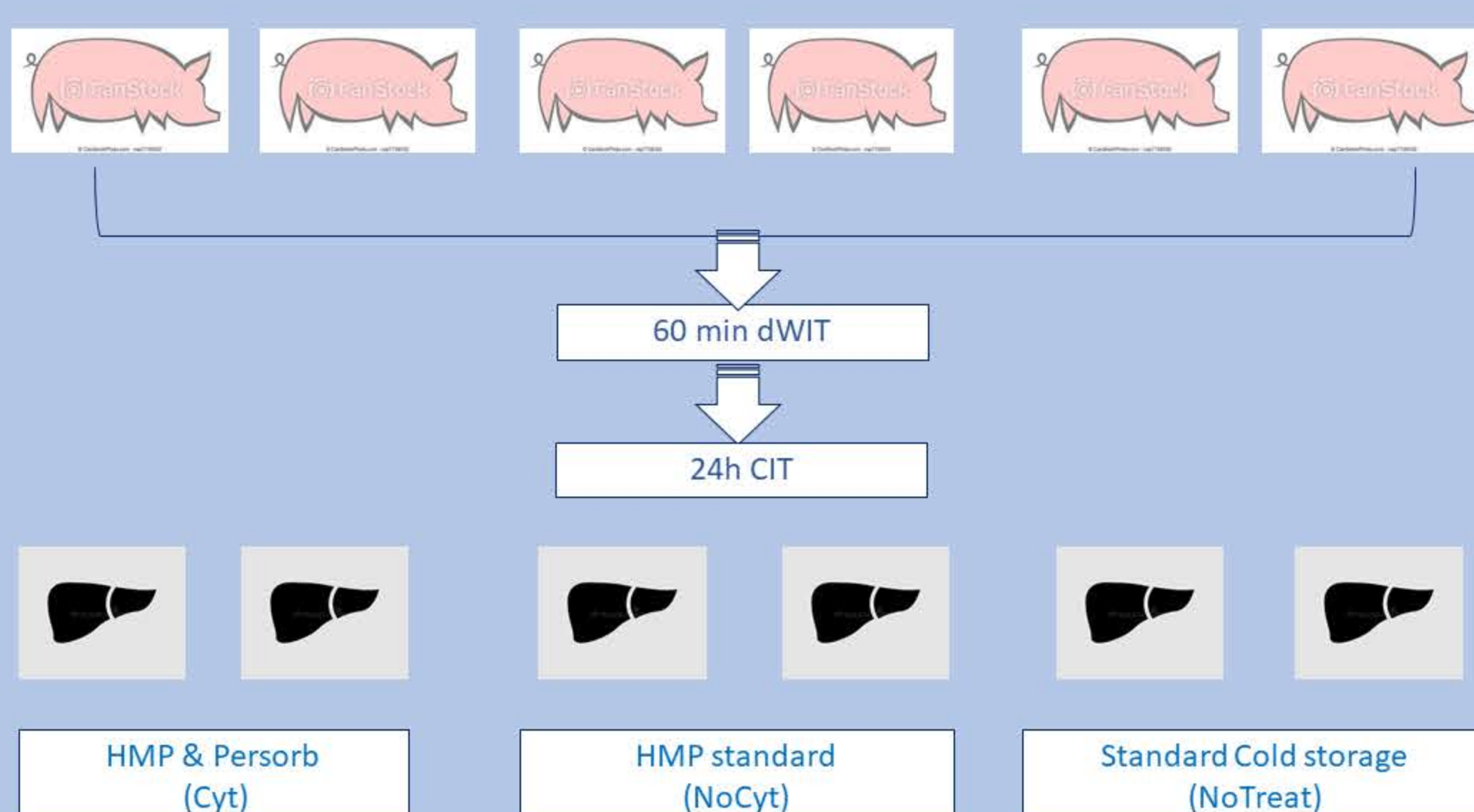
³ Gastroenterologia ed Endoscopia Digestiva, Università degli Studi di Bari, Policlinico, Bari

BACKGROUND

- Several inflammatory cytokines (CK) are continuously released by the grafts in the circulating fluid during the treatment in the machine perfusion (MP), because of the ischemia-reperfusion-injury (IRI).
- Aim of the study: analyze the role of MP connected to a sorbent cartridge (Persorb®) and used for DCD pigs livers.

METHODS

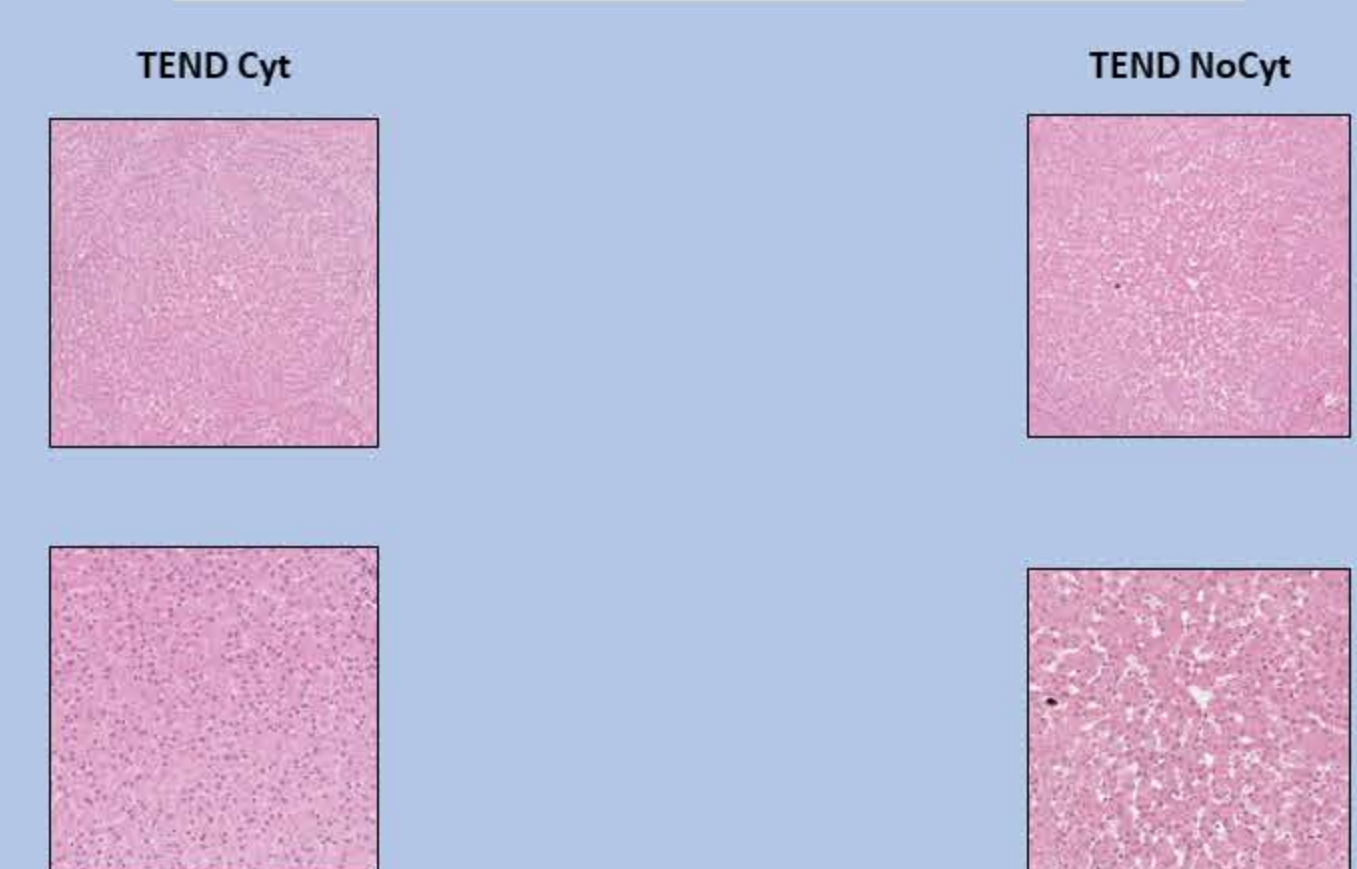
- Six grafts were procured from 6 pigs from a slaughterhouse.
- All grafts had at least 60min of dWIT and 24hours of Standard Cold Storage (SCS) to make them very marginal grafts: 2 grafts were perfused in hypothermic MP (HMP) with Persorb (Cyt), other 2 grafts in HMP without the cartridge (NoCyt) and the rest 2 livers were stored in the ice box (noTreat).
- The CK were measured before the HMP cycle(T0) and at the end (Tend) and analyzed per H&E, PAS and Sirius red.
- Biopsies were taken at T0 and Tend.



RESULTS

- All 4 grafts treated with HMP had a negative lactate trend after 3 hours of treatment: the lowest lactate value for Cyt group was 4.7mmol/l, for noCyt was 4 mmol/l and for noTreat was stable at 15 mmol/l.
- ELISA analysis showed a reduction of MCP-1, TNF α and IL-1 β for noCyt group at Tend and a complete clearing of the same CK in Cyt livers already after 2 hours of treatment.
- At Tend, the arterial resistances in Cyt group were lower of 0.30 mmHg/ml/min compared with T0 value, 0.03 in noCyt group.
- Similarly, a better arterial flow was measured in Cyt (50ml/min), compared with noCyt (10ml/min). Biopsied showed a reduction of the perisinusoidal edema for the Cyt grafts, versus the noCyt.

Histology:Cyt versus NoCyt group



Hematoxylin eosin staining

CONCLUSION

- These observational data suggest a potential protective role of the treatment with MP & a sorbent cartridge of marginal DCD grafts in reducing the inflammatory response after the ischemic damage.